

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claims 1-4 (Canceled)

5. (Currently Amended) ~~The micro-actuator of claim 1~~ A micro-actuator comprising:

a base plate on which a predetermined pattern of signal lines is formed;

a plurality of fixed comb-type electrodes that are arranged on the base plate and extend in a direction perpendicular to the base plate;

a stage capable of a see-saw motion that is arranged at a predetermined height from the top of the base plate;

a plurality of driving comb-type electrodes which are formed parallel to each other on the bottom of the stage and whose ends extend between the fixed comb-type electrodes;

a torsion bar with a predetermined length and thickness that is arranged at both ends of the stage forming one body with the stage in order to enable the see-saw motion of the stage, wherein the thickness of the torsion bar is less than the plurality of driving comb-type electrodes in a direction parallel to the plurality of driving comb-type electrodes;

a first frame layer connected to both ends of the torsion bar;

a second frame layer that is positioned below the first frame layer, thus forming a layered structure with the first frame layer; and

a metal eutectic bonding layer formed between the first and second frame layers to bond them together, wherein

the fixed comb-type electrodes are formed on an electrode base that is arranged on the base plate, and

the electrode base, the fixed comb-type electrodes and the second frame layer are formed of the same material.

6. (Original) The micro-actuator of claim 5, wherein the height of the fixed comb-type electrodes is greater than that of the second frame layer, and thus the front ends of the fixed comb-type electrodes are positioned higher than the top of the second frame layer.

Claims 7 and 8 (Canceled)

9. (Original) The micro-actuator of claim 5, wherein the front ends of the driving comb-type electrodes and the first frame layer are on a common plane.

Claims 10-22 (Canceled)

23. (Previously Presented) The micro-actuator of claim 6, wherein the front ends of the driving comb-type electrodes and the first frame layer are on a common plane.

24. (Currently Amended) ~~The micro-actuator of claim 2, wherein A micro-actuator comprising:~~

a base plate on which a predetermined pattern of signal lines is formed;

a plurality of fixed comb-type electrodes that are arranged on the base plate and extend in a direction perpendicular to the base plate;

a stage capable of a see-saw motion that is arranged at a predetermined height from the top of the base plate;

a plurality of driving comb-type electrodes which are formed parallel to each other on the bottom of the stage and whose ends extend between the fixed comb-type electrodes;

a torsion bar with a predetermined length and thickness that is arranged at both ends of the stage forming one body with the stage in order to enable the see-saw motion of the stage, wherein the thickness of the torsion bar is less than the plurality of driving comb-type electrodes in a direction parallel to the plurality of driving comb-type electrodes;

a first frame layer connected to both ends of the torsion bar;

a second frame layer that is positioned below the first frame layer, thus forming a layered structure with the first frame layer; and

a metal eutectic bonding layer formed between the first and second frame layers to bond them together, wherein

the first frame layer, the torsion bar, the stage, and the driving comb-type electrodes form one body,

the fixed comb-type electrodes are formed on an electrode base that is arranged on the base plate, and

the electrode base, the fixed comb-type electrodes and the second frame layer are formed of the same material.

25. (Currently Amended) ~~The micro-actuator of claim 3, wherein A micro-actuator comprising:~~

a base plate on which a predetermined pattern of signal lines is formed;

a plurality of fixed comb-type electrodes that are arranged on the base plate and extend in a direction perpendicular to the base plate;

a stage capable of a see-saw motion that is arranged at a predetermined height from the top of the base plate;

a plurality of driving comb-type electrodes which are formed parallel to each other on the bottom of the stage and whose ends extend between the fixed comb-type electrodes;

a torsion bar with a predetermined length and thickness that is arranged at both ends of the stage forming one body with the stage in order to enable the see-saw motion of the stage, wherein the thickness of the torsion bar is less than the plurality of driving comb-type electrodes in a direction parallel to the plurality of driving comb-type electrodes;

a first frame layer connected to both ends of the torsion bar;

a second frame layer that is positioned below the first frame layer, thus forming a layered structure with the first frame layer; and

a metal eutectic bonding layer formed between the first and second frame layers to bond them together, wherein

the first frame layer has a shape of a rectangular border that surrounds the stage,

a separate region of a predetermined width is located between the first frame layer and the stage,

the torsion bar crosses the separate region,

the fixed comb-type electrodes are formed on an electrode base that is arranged on the base plate, and

the electrode base, the fixed comb-type electrodes and the second frame layer are formed of the same material.

26. (Currently Amended) ~~The micro-actuator of claim 4, wherein A micro-actuator comprising:~~

a base plate on which a predetermined pattern of signal lines is formed;

a plurality of fixed comb-type electrodes that are arranged on the base plate and extend in a direction perpendicular to the base plate;

a stage capable of a see-saw motion that is arranged at a predetermined height from the top of the base plate;

a plurality of driving comb-type electrodes which are formed parallel to each other on the bottom of the stage and whose ends extend between the fixed comb-type electrodes;

a torsion bar with a predetermined length and thickness that is arranged at both ends of the stage forming one body with the stage in order to enable the see-saw motion of the stage, wherein the thickness of the torsion bar is less than the plurality of driving comb-type electrodes in a direction parallel to the plurality of driving comb-type electrodes;

a first frame layer connected to both ends of the torsion bar;

a second frame layer that is positioned below the first frame layer, thus forming a layered structure with the first frame layer; and

a metal eutectic bonding layer formed between the first and second frame layers to bond them together, wherein

the first frame layer has a shape of a rectangular border that surrounds the stage,

a separate region of a predetermined width having a shape of rectangular border is prepared between the first frame layer and the stage,

the torsion bar crosses the separate region,

the fixed comb-type electrodes are formed on an electrode base that is arranged on the base plate, and

the electrode base, the fixed comb-type electrodes and the second frame layer are formed of the same material.

27. (Previously Presented) The micro-actuator of claim 25, wherein the front ends of the driving comb-type electrodes and the first frame layer are on a common plane.